Common Core Standards - Resource Page

The resources below have been created to assist teachers' understanding and to aid instruction of this standard.

Domain	**Standard:** 4.NBT.5 - Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
Number and Operations in Base Ten **Use place value understanding and properties of operations to perform multi-digit arithmetic.**	Questions to Focus Learning How can I use my knowledge of multiplication to help me solve, illustrate, and explain my thinking? How does place value help me find the product in a multiplication problem? Using concepts of place value and models, we can create multiple representations to explain the process of multiplication. Student Friendly Objectives *Knowledge Targets* I know various strategies for multiplication (e.g., partial products, arrays, etc.). I know that multiplication is the same as repeated addition. I know visual models can be used to show multiplication. *Reasoning Targets* I understand the properties of multiplication. I can interpret and use visual models for multiplication. *Performance Targets* I can explain the strategy I used to solve a multiplication problem. *Product Targets* I can show my thinking by creating rectangular arrays. I can show my thinking by creating area models. I can write an equation to a model of a multiplication problem.

Vocabulary

area model
column
Commutative Property of Multiplication (working knowledge rather than the formal term)
Distributive Property of Multiplication over Addition (working knowledge rather than the formal term)
equal groups
equation
factor
Identity property of Multiplication (working knowledge rather than the formal term)
multiply/multiplication
partial product
place value
product
rectangular array
row
strategy

Teacher Tips

Provided with permission from the Public Schools of North Carolina (May 2012)
http://www.dpi.state.nc.us/acre/standards/common-core-tools/#unmath
Students who develop flexibility in breaking numbers apart have a better understanding of the importance of place value and the Distributive Property in multi-digit multiplication. Students use base ten blocks, area models, partitioning, compensation strategies, etc. when multiplying whole numbers and use words and diagrams to explain their thinking. They use the terms factor and product when communicating their reasoning. Multiple strategies enable students to develop fluency with multiplication and transfer that understanding to division. Use of the standard algorithm for multiplication is an expectation in the 5th grade.

From the *Progressions Documents for the Common Core Math Standards* http://math.arizona.edu/~ime/progressions/
In fourth grade, students compute products of one-digit numbers and multi-digit numbers (up to four digits) and products of two, two-digit numbers. They divide multi-digit numbers (up to four digits) by one-digit divisors. Students should use methods they understand and can explain. Visual representations such as area and array diagrams that students draw and connect to equations and other written numerical work are useful for this purpose. By reasoning repeatedly about the connection between math drawings and written numerical work, students can come to see multiplication and division algorithms as abbreviations or summaries of their reasoning about quantities.

	Vertical Progression 5.NBT.5 - Fluently multiply multi-digit whole numbers using the standard algorithm. 5.NBT.7 - Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

The above information and more can be accessed for free on the Wiki-Teacher website.
Direct link for this standard: 4.NBT.5